

# *The African Organisation for Standardisation*

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ARS 470 (2012) (English): Wheat flour \_  
Specification



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**Wheat flour — Specification**



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## **Foreword**

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## **Introduction**

This revised standard has incorporated the specific compositional requirements for wheat flour. The standard has prescribed the permissible levels of food additives in wheat flour. Microbiological requirements for wheat flour have also been stipulated.

This African Standard is a technical revision of the earlier ARS 470:1987(E), *Wheat flour — Specification* which is hereby superseded and cancelled.



## Wheat flour — Specification

### 1 Scope

This African Standard specifies the requirements and methods of sampling and test for wheat flour (other than durum wheat flours) intended for human consumption.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ARS 465, *Wheat — Specification*

ARS 53, *General principles of food hygiene — Code of practice*

ARS 56, *Prepackaged foods — Labelling*

CAC/GL 21, *Principles for the establishment and application of microbiological criteria for foods*

CODEX STAN 150, *Standard for food grade salt*

CODEX Stan 192, *General standard for food additives*

CODEX STAN 193, *Codex general standard for contaminants and toxins in food and feed*

ISO 1871, *Food and feed products — General guidelines for the determination of nitrogen by the Kjeldahl method*

ISO 2171, *Determination of ash content*

ISO 2591-1, *Test sieving — Part 1: Methods using test sieves of woven wire cloth and perforated metal plate*

ISO 5498, *Agricultural food products — Determination crude fibre content — General method*

ISO 4832, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*

ISO 4833, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony-count technique at 30 degrees C*

ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp.*

ISO 6888-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 1: Technique using Baird-Parker agar medium*

ISO 6888-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 2: Technique using rabbit plasma fibrinogen agar medium*

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ISO 6888-3, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 3: Detection and MPN technique for low numbers*

ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

ISO 7932, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of presumptive Bacillus cereus — Colony-count technique at 30 degrees C*

ISO 13690, *Cereals, pulses and milled products — Sampling of static batches*

ISO 16050, *Foodstuffs — Determination of aflatoxin B<sub>1</sub>, and the total content of aflatoxins B<sub>1</sub>, B<sub>2</sub>, G<sub>1</sub> and G<sub>2</sub> in cereals, nuts and derived products — High-performance liquid chromatographic method*

ISO 21527-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0.95*

ISO/TS 21872-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp. — Part 1: Detection of Vibrio parahaemolyticus and Vibrio cholerae*

ISO/TS 21872-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp. — Part 2: Detection of species other than Vibrio parahaemolyticus and Vibrio cholerae*

### 3 Definitions

For the purpose of this standard the following definitions apply.

#### 3.1

##### **wheat flour**

product made from milling clean wheat grains conforming to the requirements of WD-ARS 465

#### 3.3

##### **white wheat flour**

obtained by milling wheat grains at extraction rates that leaves negligible amounts of bran

#### 3.4

##### **bakers flour**

white wheat flour obtained by milling high protein wheat intended for bread making

#### 3.5

##### **household or home baking flour**

white wheat flour obtained by milling wheat grades or blends of hard and soft wheat intended for domestic use

#### 3.6

##### **biscuit flour**

white wheat flour obtained by milling a blend of hard and soft wheat with a high percentage of soft wheat for biscuit manufacture

#### 3.7

##### **cracker flour**

white wheat flour obtained by milling low protein wheat with no improvers

#### 3.8

##### **self-raising flour**

white wheat flour obtained by milling a blend of soft and hard wheat to which raising agents are added

**3.9**

**standard flour**

wheat flour obtained by milling wheat grains at a higher extraction than home baking flour

**3.10**

**wholemeal flour**

wheat flour obtained by milling the entire wheat grain to fine particle size without any separation

**3.11**

**atta flour**

wholemeal flour with coarse particles

**4 Quality requirements**

**4.1 Raw materials**

The wheat grain from which the flour is obtained shall be of sound quality, free from sand, have characteristic odour and flavour complying with ARS 465.

**4.2 General requirements**

**4.2.1** All types of wheat flour shall have the characteristic colour and shall be free from any objectionable flavours and odours.

**4.2.2** The flour shall be free from insects, worms, fungal infestation, rodent contaminations and foreign matter.

**4.2.3** The flour shall not contain flour from other cereals. However, the addition of malted barley flour not exceeding 1 % is permissible in the case of baker's flour.

**4.2.4** The shelf life shall be three months for wholemeal and atta, but six months for all other flours.

**4.3 Specific requirements**

The types of wheat flour shall comply with the compositional requirements given in Table 1.

**4.4 Self-raising flour**

In addition to the specifications in Table 1, specific requirements for self-raising wheat flour may contain the following:

**4.4.1** Edible salt conforming to CODEX STAN 150.

**4.4.2 Acid ingredients**

The acid ingredients shall be one or any combination of the following:

- i) sodium acid pyrophosphate;
- ii) mono acid calcium phosphate;
- iii) sodium aluminium phosphate;
- iv) sodium bicarbonate shall be in sufficient amounts to provide not less than 0.4 % of available carbon dioxide.

Table 1 — Specific requirements

Types of flour	Moisture content, max. %, m/m	Fibre content, max. %, m/m	Total ash content, max. %, m/m	Residue on sieving through 180 micron sieve, max. %	Protein content, min. %, m/m	Mixture of acid-ingredients and sodium bicarbonate added, max. %, m/m
White wheat flour:						
Baker's flour	13	1.0	0.70	0.80	11.0	—
Home baking flour	13	1.0	0.70	0.80	9.0	—
Biscuit flour	13	1.0	0.55	0.50	8.0	—
Cracker flour	13	1.0	0.70	0.50	8.0	—
Self-raising flour	13	1.0	2.0	0.80	8.0	4.5
Standard flour	13	1.5	1.10	30.0	11.0	—
Atta flour	13	2.0	2.0	55.0	12.0	—
Whole-meal flour	13	2.0	2.0	30.0	12.0	—
Test methods	ISO 6540	ISO 5498	ISO 2171	ISO 2591-1	ISO 1871	

## 5 Food additives

The product shall contain only permitted additives complying with CODEX STAN 192.

### 5.1 Improvers

Improvers may be added singly or in combination, including but not limited to:

- |      |                        |  |
|------|------------------------|--|
| i)   | ascorbic acid          | <i>Maximum permitted level</i><br>200 ppm; |
| ii)  | potassium persulphate  | 100 ppm;                                   |
| iii) | ammonium persulphate   | 250 ppm;                                   |
| iv)  | mono calcium phosphate | 2 500 ppm;                                 |
| v)   | chlorine dioxide       | 30 ppm.                                    |

### 5.2 Bleachers (added singly)

- |     |                   |  |
|-----|-------------------|--|
| i)  | nitrogen peroxide | <i>Maximum permitted level</i><br>GMP; |
| ii) | benzoyl peroxide  | 150 mg/kg                              |

### 5.3 Diastatically actives (singly or combined)

- |     |  |  |
|-----|--|--|
| i)  | malt flour (milled from highly diastatic barley) | <i>Maximum permitted level</i><br>GMP; |
| ii) | fungual enzyme (amylzyme or MYL-X)               | 45 mg/kg                               |

### 5.4 Azordicarbonamide (ADA) and potassium bromate

Shall not be used at all.

## 6 Hygiene

**6.1** Wheat flour shall be produced, prepared and handled in accordance with the provisions of appropriate sections of ARS 53.

**6.2** When tested by appropriate methods of sampling and examination, the product:

- shall be free from microorganisms in amounts which may represent a hazard to health;
- shall be free from parasites which may represent a hazard to health; and
- shall not contain any substance originating from microorganisms in amounts which may represent a hazard to health.

**6.3** The product shall be free from pathogenic micro-organism and shall comply with microbiological limits in Table 2.

**Table 2 — Microbiological limits**

S/N	Micro-organism(s)	Requirements	Method of test
1	Total plate count, cfu/g	$10^3$	ISO 4833
2	<i>Staphylococcus aureus</i> cfu/g max	$10^2$	ISO 6888
3	<i>Escherichia coli</i> , cfu/g, max.	absent	ISO 7251
4	<i>Salmonella</i> , per 25g, max.	absent	ISO 6579
5	<i>Coliforms</i> g (per 100 g)	absent	ISO 4832
6	<i>Bacillus cereus</i> , per 25g, max.	absent	ISO 7932
7	Yeasts and moulds, cfu/g, max.	$10^3$	ISO 21527-2
	<i>Vibrio cholerae</i>	absent	ISO/TS 21872

## 7 Contaminants

### 7.1 Heavy metals

Wheat flour shall comply with those maximum limits for heavy metals established by the Codex Alimentarius Commission for this commodity.

### 7.2 Pesticide residues

Wheat flour shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

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### **7.3 Mycotoxins**

Wheat flour shall comply with those maximum mycotoxin limits established by the Codex Alimentarius Commission for this commodity. In particular, total aflatoxins in wheat flour shall not exceed 10 µg/kg and 5 µg/kg for aflatoxin B<sub>1</sub> when tested in accordance with ISO 16050 and total fumonisins shall be not more than 1 mg/kg when determined in using validated methods.

## **8 Packaging**

**8.1** Wheat flour shall be packaged in containers which will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

**8.2** The containers, including packaging material, shall be food grade.

**8.3** When the product is packaged in sacks, these must be clean, sturdy and strongly sewn or sealed.

## **9 Labelling**

In addition to the requirements in ARS 56, each package shall be legibly and indelibly marked with the following:

- i) product name as “wheat flour”
- ii) name, address and physical location of the manufacturer/ packer/importer;
- iii) lot/batch/code number;
- iv) net weight, in kg;
- v) the declaration “Food for Human Consumption”;
- vi) storage instruction as “Store in a cool dry place away from any contaminants”;
- vii) Date of manufacture;
- viii) expiry date;
- ix) instructions on disposal of used package;
- x) country of origin;

## **10 Methods of sampling**

Sampling shall be done in accordance with the ISO 13690.

## **Bibliography**

EAS 1:2012, *Wheat flour — Specification*

CODEX STAN 152-1985 (Rev. 1 - 1995), *CODEX Standard for wheat flour*

Department of Agriculture, Regulation Gazette No. 30782, 22 February 2008, Agricultural Product Standards Act, 1990 (Act No. 119 of 1990), *Regulations relating to the grading, packing and marking of wheat products intended for sale in the Republic of South Africa*



